

CLAIMS

What is claimed is:

1. A communication apparatus for processing a transmission received from a
2 cordless device, the apparatus comprising:

3 a microcontroller unit having an input that receives a digital communication
4 packet derived from the transmission, the microcontroller unit for
5 processing the digital communication packet and further comprising:

6 an edge detection mechanism coupled to the input for detecting state
7 transitions included in the digital communication packet;

8 a timer having a first value that is read in response to the edge detection
9 mechanism detecting a first state transition, and a second value
10 that is read in response to the edge detection mechanism
11 detecting a second state transition; and

12 a central processing unit having access to the first and second values of
13 the timer, the central processing unit for determining whether a
14 valid pulse width has been received based on the first and
15 second values of the timer.

1. The apparatus of claim 1 wherein the valid pulse width indicates that a
2 valid start pattern of the digital communication packet has been received.

1. The apparatus of claim 1 wherein the valid pulse width indicates that a
2 valid stop pattern of the digital communication packet has been received.

1. The apparatus of claim 1 wherein the valid pulse width indicates that a
2 valid bit pattern of the digital communication packet has been received.

1. The apparatus of claim 1 further comprising:

2 a data report engine operatively coupled to the central processing unit, the data
3 report engine having a first data structure for declaring functionality of
4 standard keys included on a cordless keyboard, and a second data structure
5 for declaring functionality of a cordless mouse.

1 6. The apparatus of claim 5 wherein the second data structure is also for
2 declaring functionality of system control keys and consumer control keys included on a
3 cordless keyboard.

1 7. The apparatus of claim 1 further comprising:

2 a data report engine operatively coupled to the central processing unit, the data
3 report engine for, in response to receiving decoded and formatted data
4 from the central processing unit, generating a standard data report that can
5 be transmitted to, and understood by, a host system having no active driver
6 corresponding to the cordless device.

1 8. The apparatus of claim 1 further comprising:

2 a data report engine operatively coupled to the central processing unit, the data
3 report engine for, responsive to status data reporting being enabled,
4 generating a standard data report that indicates to a host system that a
5 status data report is available from the cordless device.

1 9. The apparatus of claim 8, wherein the status data report indicates at least
2 one of an identity of the cordless device, a battery status of the cordless device, a profile
3 of the cordless device, a profile code of the cordless device.

1 10. The apparatus of claim 1, wherein the microcontroller unit can
2 simultaneously process digital communication packets from a number of different
3 communication links, each communication link associated with a different cordless
4 device, a different microcontroller input, a different edge detection mechanism and a
5 different timer.

1 11. A communication apparatus for processing digital information included in
2 a transmission received from a cordless device, the apparatus comprising:

3 a processing environment having an input that receives the digital information, the
4 processing environment further comprising:

5 an input capture mechanism coupled to the input for collecting input
6 capture data associated with the digital information; and

7 a central processing unit having access to the input capture mechanism,
8 the central processing unit for decoding the digital information

based on the input capture data, and for formatting data included in the digital information; and

a data report engine operatively coupled to the central processing unit, the data report engine for communicating the data a host system having no active driver corresponding to the cordless device.

1 12. A method for processing a digital communication packet derived from a
2 transmission received from a cordless device, the method comprising:

detecting a first state transition included in the digital communication packet;

assigning a first time to the first state transition;

detecting a second state transition included in the digital communication packet;

assigning a second time to the second state transition; and

determining whether a valid pulse width has been received based on the first and second times.

13. The method of claim 12 wherein the valid pulse width indicates that a valid start pattern of the digital communication packet has been received.

14. The method of claim 12 wherein the valid pulse width indicates that a valid stop pattern of the digital communication packet has been received.

15. The method of claim 12 wherein the valid pulse width indicates that a valid bit pattern of the digital communication packet has been received.

16. The method of claim 12 further comprising:

responsive to determining that a number of valid pulses have been received, decoding and formatting data included in the digital communication packet;

providing the decoded and formatted data to a data report engine for transmission to a host system having no active driver corresponding to the cordless device.

17. The method of claim 12, further comprising:

2 declaring functionality of standard keys included on a cordless keyboard so that a
3 data report responsive to standard key activity will be understood by a host
4 system receiving the data report.

1 18. The method of claim 12 further comprising:

2 declaring functionality of a mouse so that a data report responsive to mouse
3 activity will be understood by a host system receiving the data report.

1 19. The method of claim 12 further comprising:

2 in response to receiving decoded and formatted data, generating a standard data
3 report that can be transmitted to, and understood by, a host system having
4 no active driver corresponding to the cordless device.

1 20. The method of claim 12 further comprising:

2 responsive to status data reporting being enabled, generating a standard data
3 report that indicates to a host system that a status data report is available
4 from the cordless device.

1 21. The method of claim 20, wherein the status data report indicates at least
2 one of an identity of the cordless device, a battery status of the cordless device, a profile
3 of the cordless device, a profile code of the cordless device, a status of the cordless
4 device, and a status of the apparatus.

1 22. The method of claim 12, wherein digital communication packets from a
2 number of different communication links, each communication link associated with a
3 different cordless device, are processed simultaneously.

1 23. A method for processing digital information included in a transmission
2 from a cordless device, the method comprising:

3 collecting input capture data included in the digital information;

4 decoding the digital information based on the input capture data;

5 formatting data included in the digital information; and

6 6 communicating the data to a host system having no active driver corresponding to
7 the cordless device.

1 24. A method for communicating status information from a cordless device to
2 a corresponding driver running on a host system, the method comprising:

3 receiving a standard data report that indicates that status reporting is enabled and
4 status data is available to be collected for the cordless device; and

5 retrieving the status data, the status data including at least one of an identity of the
6 cordless device, a battery status of the cordless device, a profile of the
7 cordless device, and a profile code of the cordless device.

1 25. A method for processing digital information included in a transmission
2 from a composite cordless device, the method comprising:

3 collecting input capture data included in the digital information;

4 determining whether data included in the digital information is a first data type or
5 a second data type based on the input capture data;

6 communicating the first type of data to its correct destination included in a host
7 system having no active driver corresponding to the composite cordless
8 device; and

9 communicating the second type of data to its correct destination included in a host
10 system having no active driver corresponding to the composite cordless
11 device.

1 26. A communication apparatus for processing a transmission received from a
2 cordless device, the apparatus comprising:

3 a microcontroller unit having an input that receives a digital communication
4 packet derived from the transmission, the microcontroller unit for
5 processing the digital communication packet and further comprising:

6 an edge detection mechanism coupled to the input for detecting state
7 transitions included in the digital communication packet;

8 a timer having a first value that is read in response to the edge detection
9 mechanism detecting a first state transition, and a second value
10 that is read in response to the edge detection mechanism
11 detecting a second state transition;

12 a central processing unit having access to the first and second values of
13 the timer, the central processing unit for determining whether a
14 valid pulse width has been received based on the first and
15 second values of the timer; and

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18 a data report engine operatively coupled to the central processing unit,
19 the data report engine for, in response to receiving decoded and
20 formatted data from the central processing unit, generating a
21 standard data report that can be transmitted to, and understood
by, a host system having no active driver corresponding to the
cordless device.

1 27. A computer program product, stored on a computer readable medium, for
2 processing a digital communication packet derived from a transmission received from a
3 cordless device, wherein in response to the computer program product being executed by
4 a processor, the processor performs the steps of:

5 detecting a first state transition included in the digital communication packet;
6 assigning a first time to the first state transition;
7 detecting a second state transition included in the digital communication packet;
8 assigning a second time to the second state transition; and
9 determining whether a valid pulse width has been received based on the first and
10 second times.

1 28. A computer program product, stored on a computer readable medium, for
2 processing digital information included in a transmission from a cordless device, wherein
3 in response to the computer program product being executed by a processor, the
4 processor performs the steps of:

5 collecting input capture data included in the digital information;
6 decoding the digital information based on the input capture data;
7 formatting data included in the digital information; and
8 communicating the data to a host system having no active driver corresponding to
9 the cordless device.

1 29. A computer program product, stored on a computer readable medium, for
2 communicating status information from a cordless device to a corresponding driver
3 running on a host system, wherein in response to the computer program product being
4 executed by a processor, the processor performs the steps of:

5 receiving a standard data report that indicates that status reporting is enabled and
6 status data is available to be collected for the cordless device; and

7 retrieving the status data, the status data including at least one of an identity of the
8 cordless device, a battery status of the cordless device, a profile of the
9 cordless device, and a profile code of the cordless device.

1 30. A computer program product, stored on a computer readable medium, for
2 processing digital information included in a transmission from a composite cordless
3 device, wherein in response to the computer program product being executed by a
4 processor, the processor performs the steps of:

5 collecting input capture data included in the digital information;
6 determining whether data included in the digital information is a first data type or
7 a second data type based on the input capture data;
8 communicating the first type of data to its correct destination included in a host
9 system having no active driver corresponding to the composite cordless
10 device; and
11 communicating the second type of data to its correct destination included in a host
12 system having no active driver corresponding to the composite cordless
13 device.

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